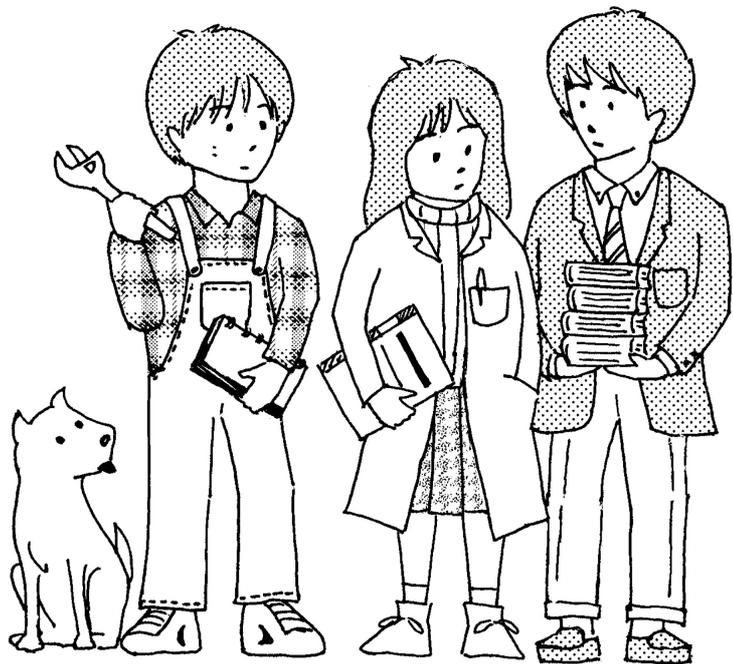


SYLLABUS

2018

[B] Architecture



Kyoto University, Faculty of Engineering

[B] Architecture

Architecture

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Introduction to Architectural Engineering

建築工学概論

【Code】 40510 【Course Year】 1st year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	4	
	3	
	3	
	4	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

History of World Architecture

世界建築史

【Code】40640 【Course Year】 【Term】 【Class day & Period】 【Location】 【Credits】2

【Restriction】No Restriction 【Lecture Form(s)】Lecture 【Language】Japanese 【Instructor】,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	<small>Class number of times</small>	Description
	8	
	4	
	1	
	1	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【】

【Web Sites】

【Additional Information】

Atelier Practice of Architectural Design, Basis

設計演習基礎

【Code】 40610 【Course Year】 1st year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Seminar 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	7	
	7	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Fundamental Training in Architectural Design

建築造形実習

【Code】 40720 【Course Year】 1st year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Exercise 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	1	
	6	
	6	
	1	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【】

【Web Sites】

【Additional Information】

Architectural Planning I

建築計画学 I

【Code】40050 【Course Year】2nd year 【Term】 【Class day & Period】 【Location】 【Credits】2 【Restriction】No Restriction
 【Lecture Form(s)】Lecture 【Language】Japanese 【Instructor】,,

【Course Description】Lecture on the basic knowledge on dimensional planning, scale planning, flow lines, etc. necessary for planning and designing the architecture, as well as the interpretation and the process of establishment of functions and programs, building types. In addition, we will give a lecture on the basis of positive (explanatory) theory to explain human psychology and behavior in built environment.

【Grading】Examination

【Course Goals】Understand the fundamental matters of the planning and design of architecture and the theories to understand human psychology and behavior in built environment.

【Course Topics】

Theme	Class number of times	Description
Target area of architectural planning studies	1	After outlining the genealogy of architectural planning studies, explain the concept of planning in architecture and its transition, and show the areas to be covered by architectural planning studies.
Dimensional planning	1	Understand the concept of the unit space of buildings and deepen their understanding of the measure of human body, dimension of motion required for designing, dimensional planning of unit space and so on.
Planning of capacity and size	1	Understand the planning of capacity and size of regional facilities and prediction of population fluctuation, fluctuation in the number of people using facility and the overflow method.
Evaluation	1	Lecture on evaluations and living environment evaluations done in the planning and design process of the building and deepen their understanding of the weight determination method and the evaluation method such as max-min principle and so on.
Durability planning	1	Lecture on durable planning of space building. Understand the social durable years and conversion etc of buildings.
Facility Management	2	Mainly focusing on facility management in the office, review the transition of facility management and the POE survey.
Building type	3	Lecture on the type of daily behavior, room type / building type, type of combination / division of space, concept of flow line etc. Also, lecture on the process of establishment of representative building types such as schools and hospitals since modern times and deepen their understanding
Function Program	2	Lectures on concepts and changes of functions and programs in architectural design.
Environmental psychology	1	Focus on environmental psychology, positive (explanatory) theory to explain human psychology in the environment and give lecture on the spread of the object, and outline affordance and others.
Proximity Privacy Security	1	Lecture on the concept of proximity studies (proxemics) from animal behavioral theory, cultural anthropology and how they are applied to architectural planning studies such as privacy awareness and crime prevention etc.
Confirmation of learning achievement	1	Confirm the proficiency level of lecture content.

【Textbook】Distribute original documents every time and help to understand using projector projection slide.

【Textbook(supplemental)】

【Prerequisite(s)】

【】

【Web Sites】

【Additional Information】[Grading evaluation] Examination. [Office Hour] (reception of questions, etc.) Friday 12: 00-13: 00
 [corresponding learning / educational goal] B. Expertise and basic knowledge B2. Ability to understand the design and planning aspects of architecture

Housing Design

住居計画学

【Code】 40060 【Course Year】 2nd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	1	
	1	
	2	
	1	
	1	
	3	
	2	
	3	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Architectural Design Method

建築設計論

【Code】 40160 【Course Year】 2nd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	5	
	5	
	4	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Atelier Practice of Architectural Design I

設計演習 I

【Code】 40070 【Course Year】 2nd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Seminar 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	<small>Class number of times</small>	Description
	7	
	7	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Atelier Practice of Architectural Design II

設計演習 II

【Code】 40080 【Course Year】 2nd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Seminar 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	7	
	7	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Environmental Engineering of Architecture I

建築環境工学 I

【Code】 40090 【Course Year】 2nd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese

【Instructor】 Kazunori Harada, Daisuke Ogura,

【Course Description】

【Grading】 Score is evaluated based on end-term examination and other materials.

【Course Goals】 B1) scientific ability to solve problems, B4) understanding of environmental engineering aspects in architecture, C1) ability to realize architectural projects

【Course Topics】

Theme	Class number of times	Description
building and climate	3	
thermal comfort and environment	2	
heat transfer in buildings	3	
air quality and ventilation	4	Sources of indoor air pollution, required ventilation rate, mechanism of ventilation, planning and calculation methods of buoyancy ventilation and wind-driven ventilation.
thermal radiation heat transfer	2	Principle of thermal radiation, utilization of thermal radiation to buildings
evaluation of achievements	1	Achievement on above items will be evaluated.

【Textbook】

【Textbook(supplemental)】 Shuichi Hokoi, Teturo Ikeda, Katsumichi Nitta, Kenchiku Kankyo Kougaku II (Environmental engineering in Architecture II, in Japanese), Asakura Shoten

【Prerequisite(s)】 None specified.

【 】

【Web Sites】

【Additional Information】 [Office hour] No specific time is to be specified. Those who want to make questions can make an appointment with lecture staff.

Environmental Engineering of Architecture II

建築環境工学 II

【Code】 40100 【Course Year】 2nd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	2	
	4	
	3	
	1	
	3	
	4	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Mechanics of Building Structures I

建築構造力学 I

【Code】 40110 【Course Year】 2nd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】 ,

【Course Description】 This course presents the fundamentals on the shapes, elements, and design of building structures. Mechanical models, basic concepts and theories, and their applications are shown. Definitions of stress and strain, mechanical properties of structural materials, stress resultants and deformation of bars, theory and application of statically determinate beams are also given.

【Grading】 Term examination

【Course Goals】 To study fundamentals of mechanics of building structures, which form the basis of studying mechanics of building structures 2 and 3.

【Course Topics】

Theme	Class number of times	Description
Role of structural mechanic and fundamentals of statics	2	Classification of frame structures. Shapes and mechanical properties of frame structures. Role of structural mechanics in structural design. Displacement, strain, force, moment. Equilibrium equations of free body.
Mechanical properties of materials and principles for analysis of deformable bodies	3	Deformation process of structural materials, e.g., steel and concrete, under external forces. Definition of elasticity, plasticity, and viscosity. Definition of stress and strain. Stress-strain relationship. Basic equations for frame analysis. Assumptions and approximations for elementary analysis.
Statically determinate beams	4	Definition of stress resultants of beams. Statically determinate beams. Methods for finding reaction forces and stress resultants using equilibrium equations for free bodies. Derivation of differential equations for beams. Diagrams for axial forces, shear forces, and bending moments.
Stresses on beam section	5	Assumption of plane sections. Axial stress due to axial force and bending moment. Shear stress due to torque. Mohr's circle.
Feedback using term exam	1	Conduct feedback using term exam through KULASIS

【Textbook】 T.Nakamura (ed.) ‘ Mechanics of building structures I: Illustrative description and exercises ’ , Maruzen.

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Mechanics of Building Structures II

建築構造力学 II

【Code】 40120 【Course Year】 2nd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 【Language】 Japanese 【Instructor】 ,

【Course Description】 Axial deformation of a bar and bending deformation of a beam. Statically determinate truss and moment-resisting frame. Theory of statically indeterminate beams and buckling of columns. The force method and the displacement method (stiffness method) are described in the theory of statically indeterminate beams. Exercises are given for each subject.

【Grading】 Term examination

【Course Goals】 Study analysis method of bending deformation of beams and theory of statically indeterminate beams. In addition study the theory of statically determinate truss and moment-resisting frame and the theory of buckling of columns.

【Course Topics】

Theme	Class number of times	Description
Axial deformation of a bar and bending deformation of a beam	1	Differential equation for deflection curve of a beam and Mohr ' s theorem for deflection analysis.
Theory of statically indeterminate beams 1	3	Force method in terms of unknown stress resultants and reactions.
Theory of statically indeterminate beams 2	3	Displacement method in terms of unknown displacements.
Statically determinate truss and frame	4	Analysis of stress resultants in statically determinate trusses and moment-resisting frames.
Buckling of column	3	Governing equation for a buckling problem of a column. Eigenvalue analysis. Slope-deflection method for buckling analysis.
Feedback using term exam	1	Conduct feedback using term exam through KULASIS

【Textbook】 T.Nakamura (ed.) ‘ Mechanics of building structures I: Illustrative description and exercises ’ , Maruzen.

【Textbook(supplemental)】

【Prerequisite(s)】

【】

【Web Sites】

【Additional Information】 Office hour: Friday 10:30-12:00.

Construction Engineering and Management I

建築生産

【Code】 40210 【Course Year】 2nd year 【Term】 【Class day & Period】 Wed 1st 【Location】 N7 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】 Professor Takashi KANETA

【Course Description】 Stakeholders and their roles in a building construction project will be explained, looking at the project process including project planning, architectural design, building construction, and maintenance.

【Grading】 Evaluated by Examination.

Accepted tasks, quiz, and attendance to the class will be considered.

【Course Goals】 Knowledge on building construction process.

B-B2.

【Course Topics】

Theme	Class number of times	Description
Introduction	1	Outline of construction engineering and management.
		Goals and scopes of the lectures. Textbook Chapter 1
Construction market	1	Construction market of Japan and overseas. Activities and volumes of construction market. Textbook Chapter 2
Regulations and codes	1	Regulations and codes for professionals in building construction. Textbook Chapter 3
Building system	1	Stakeholders, regulations, standards, jobs and roles that are involved with building construction projects. Project delivery methods, contracts, procurement system. Textbook Chapter 4
Project management	2	Outline of project management in building construction. Textbook Chapter 5
Project planning	1	Project process and phases. Project planning, briefing, feasibility study, programming, development management. Textbook Chapter 6, 6.1
Design in project process	3	Design, drawings and specification required in a construction project. Cost management, design review, concurrent engineering, quantity survey, value engineering. Textbook Chapter 6, 6.2-6.3
Engineering in design	1	Engineering in design, for example, design review, concurrent engineering, collaboration in design, production design, value engineering. Textbook Chapter 6, 6.4
Cost management	1	Quantity survey and cost estimation. Cost control through design process. Textbook Chapter 6, 6.5
Procurement and contract	1	Variety of procurement and contract for building projects. Supervision of construction and inspection. Textbook Chapter 6, 6.6-6.7
Maintenance	1	Maintenance in the age of global ecology. Demolish and waste treatment. Reuse and recycle of material. Textbook Chapter 6, 6.8
Exam and feedback	2	

【Textbook】 Shuzo FURUSAKA: KENCHIKU-SEISAN, Published by Riko Tosho.

ISBN978-4-8446-0863-9

【Textbook(supplemental)】

【Prerequisite(s)】 Social science and economics taught in High School.

【】

【Web Sites】

【Additional Information】 Contact to:

kaneta@archi.kyoto-u.ac.jp

Materials for Buildings

建築材料

【Code】 40130 【Course Year】 2nd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	<small>Class number of times</small>	Description
	1	
	4	
	3	
	4	
	2	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Building and Urban Administration

建築・都市行政

【Code】40430 【Course Year】2nd year 【Term】 【Class day & Period】 【Location】 【Credits】2 【Restriction】

【Lecture Form(s)】Lecture 【Language】Japanese 【Instructor】,,,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	1	
	3	
	2	
	2	
	4	
	1	
	1	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【】

【Web Sites】

【Additional Information】

Theory of Landscape Design

景観デザイン論

【Code】 40410 【Course Year】 2nd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	7	
	7	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Computational Practice on Architectural Design and Engineering

建築情報処理演習

【Code】 40590 【Course Year】 2nd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 【Language】 Japanese

【Instructor】 D. Ogura, T. Kaneta, M. Kurata, M. Moriyama, K. Takatsuka and D. Nii,

【Course Description】 The course provides lectures and exercises to acquire fundamental knowledge for analyzing engineering problems in architecture using computers. The participants will study data processing using a programming language and learn program design, coding and data analysis.

【Grading】 The course grades are based on class participation and achievement tests.

【Course Goals】 The participants are expected to learn fundamental knowledge for solving numerical problems in architectural engineering using PCs. The course uses a programming language named Python and teaches "Branching", "Data Types", "Data Format", "Array", "File Reading and Writing", and "Sub-routine". The course are intended for "B1 Scientific problem-solving skills", "D1 Problem Finding and Solving Skills".

【Course Topics】

Theme	Class number of times	Description
Guidance	1	
Introduction to programming (1st term)	4	
Application of programming (2nd term)	1	
Example of the computer application for building design	4	
Intermediate programming (3rd term)	4	
Achievement test	1	

【Textbook】 S. Tsuji: Python Start Book, Gijutsu-Hyohron

【Textbook(supplemental)】 Architectural Institute of Japan, Information System Committee, Design Science Education Method Sub-committee. "Introduction to Design and Computing - Generation / Analysis / Optimization of Architectural Forms and Functions using Python -". A document is appropriately distributed during practice.

【Prerequisite(s)】

【】

【Web Sites】

【Additional Information】

Engineering Mathematics C

工業数学 C

【Code】 21020 【Course Year】 2nd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese

【Instructor】 Kosaka Atsushi, Kazuyoshi Nishijima,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	5	
	1	
	5	
	3	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Urban Design

都市設計学

【Code】40170 【Course Year】3rd year 【Term】 【Class day & Period】 【Location】 【Credits】2

【Restriction】No Restriction 【Lecture Form(s)】Lecture 【Language】Japanese 【Instructor】Hirohide Kobayashi,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	<small>Class number of times</small>	Description
History of cities	3	
City planning	5	
Infrastructure of cities	6	
Cities and disasters	1	
Cities and environment		
Evaluation of achievement	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Behavior and Architectural Design Theory

行動・建築デザイン論

【Code】 40530 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】

【Course Description】 This course gives the basic knowledge of architecture and space design from the view point of the relation between man and behavior. The topics on scientific methods of man-environment studies are explained. Natural disaster will be highlighted in this lecture. Various design practices based on these principles, such as housing after natural disaster, disaster and build environments, design for disaster reduction, and design for safer communities will be discussed.

【Grading】 by term-end examination

【Course Goals】 To understand the architectural and urban spaces from the viewpoint of relation with disaster.

【Course Topics】

Theme	Class number of times	Description
Various Concepts on Human behavior and Environment	2	Man perceives environment based on diverse information such as form, color, movement, sound, and fragrance, acts in environment, reads environment as the significant world, and memorizes the place and landscape of environment. We explain such mechanism on perception, behavior, cognition, and memory in Man-Environment relations. Moreover we refer to the fundamental characteristics of human behavior including concept of identity and orientation, roundabout route, excursion characteristics, prospect and refuge, ordinary and extra-ordinary behavior.
disaster and environmental transition	3	Basic understanding about disaster and build environment will be discussed. And the relationship among disaster, man, and environment will be explained based on environmental transition after disaster.
Disaster and Cities	3	Impact of disaster to cities will be discussed from the view point of behavior and man-environment design.
Architecture design for disaster	2	Design of public facilities to respond disaster will be discussed from the view point of man-environment design.
CEPTED	2	Design for crime prevention will be explained based on CEPTED (Crime Prevention through Environment Design).
Design for Disaster Risk Reduction	2	Design scheme for Disaster risk reduction will be explained based on Affordance, and risk communication.
Confirmation of the learning degree	1	Summary of the lecture and evaluation of the learning degree

【Textbook】 using handout prints and slides

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】 Please contact to the following e-mail; maki.norio.8v#kyoto-u.ac.jp (# should be changed to `)

History of Japanese Architecture

日本建築史

【Code】 40580 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	<small>Class number of times</small>	Description
	14	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Building Systems Design

建築設備システム

【Code】 40180 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	4	
	3	
	2	
	3	
	2	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Reinforced Concrete Structure I

鉄筋コンクリート構造 I

【Code】 40190 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	2	
	3	
	3	
	3	
	3	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Steel Structure I

鉄骨構造 I

【Code】 40200 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 【Language】 Japanese 【Instructor】 ,,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	2	
	2	
	1	
	1	
	2	
	2	
	1	
	3	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【】

【Web Sites】

【Additional Information】

Mechanics of Building Structures III

建築構造力学 III

【Code】 40220 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 4

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】 ,

【Course Description】 Slope-deflection method and moment distribution method. Force method and displacement method (stiffness method). Matrix method for structural analysis. Principles of virtual work and energy methods. Fundamental theory of structural analysis and theory of plastic analysis of frames.

【Grading】 Term examination

【Course Goals】 Study force method, displacement method (stiffness method) and matrix method for structural analysis. In addition study slope-deflection method and theory of plastic analysis of frames.

【Course Topics】

Theme	Class number of times	Description
Fundamental theory of structural analysis and slope-deflection method	4	Frame analysis model and governing equation for slope-deflection method.
Moment distribution method	1	Moment distribution method without nodal lateral displacement.
Three-dimensional frame	2	Plane frames with equal horizontal displacements. Shear force distribution formula. Structural design of building frames.
Displacement method and force method	9	Member stiffness matrix and system stiffness equation for truss and moment-resisting frame. Treatment of mid-span loads.
Principles of virtual work	5	Principle of virtual displacement. Unit virtual displacement method and stiffness method. Principle of virtual force. Unit virtual force method.
Principles of energy methods	3	Stationary and minimum principles of total potential energy and complementary energy.
Plastic limit analysis and elastic-plastic analysis	5	Load-deformation curve for an elastic-perfectly plastic beam, plastic hinge, plastic collapse, virtual work equation, fundamental theorem for plastic limit analysis, plastic limit analysis of moment resisting frame.
Feedback using term exam	1	Conduct feedback using term exam through KULASIS

【Textbook】 T.Nakamura (ed.) ‘ Mechanics of building structures II: Illustrative description and exercises ’ , Maruzen.

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】 Office hour: Before and after the class

Construction Engineering and Management II

建築生産

【Code】 40280 【Course Year】 3rd year 【Term】 【Class day & Period】 Tue 1st 【Location】 N8

【Credits】 2 【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese

【Instructor】 Professor Takashi KANETA

Visiting Lecturer Toshio KIUCHI

【Course Description】 Planning and management method in building construction project will be explained. Construction management and construction technology, integrated with information and communication technology, will be also explained with the latest project reports.

【Grading】 Evaluated by Examination.

Accepted tasks, quiz, and attendance to the class will be considered.

【Course Goals】 Basic knowledge on supervising and construction management.

C-C1.

【Course Topics】

Theme	Class number of times	Description
Introduction	1	Construction process based on drawings and specifications. Textbook Chapter 7
Planning and management	5	Construction planning and management. Considering schedule, quality, cost, safety, environment. Textbook Chapter 8, 10, 10.1-10.4
Management method	2	Project team design, information and reporting system, procurement system, Value engineering. Textbook Chapter 10, 10.5-10.6
Project management and ICT	1	Building Information Modeling and other applications. Textbook Chapter 10, 10.7-10.8
Construction Control	5	Construction planning and control. Taught by Visiting Lecturer Kiuchi. Textbook Chapter 9, 11
Exam and feedback	2	

【Textbook】 Shuzo FURUSAKA: KENCHIKU-SEISAN, Published by Riko Tosho.

ISBN978-4-8446-0863-9

【Textbook(supplemental)】

【Prerequisite(s)】 Requested to master "Construction Engineering and Management I" in advance.

【】

【Web Sites】

【Additional Information】 Contact to:

kaneta@archi.kyoto-u.ac.jp

Theory of Architecture

建築論

【Code】 40290 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	<small>Class number of times</small>	Description
	7	
	1	
	6	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Theory of Living Space in the Region

都市・地域論

【Code】40300 【Course Year】3rd year 【Term】 【Class day & Period】 【Location】 【Credits】2 【Restriction】No Restriction

【Lecture Form(s)】Lecture 【Language】Japanese 【Instructor】KANKI Kiyoko

【Course Description】Urban and rural planning with the physical analysis, social analysis, regulation systems and those improvement, designing the comprehensiveness of the local communities as the places of lives.

【Grading】2 or 3 times of homeworks (about survey and planning), and the result of the Examination

【Course Goals】B basic and advanced knowledge, B2 understanding planning and managements of architectures, C practicing skills, c2 ability to manage the social significance of architectures, E Global view, E2 ability to understand the global and local view for the architectures.

【Course Topics】

Theme	Class number of times	Description
History of Modern City Planning	1	Overviewing the history of modern city planning and the trials of Utopian cities, and considering the meanings of them specially through how those trials have been inherited.
Building Control	1	Explaining the system of building control and urban development control by the building and City Planning regulation.
District Planning	1	Explaining the systems of the district planning, with a special focus on the local community's initiative and the systems' result and potential.
Spacial Structure of Villages and Cities	1	Understanding the attractive spacial structures of traditional villages and city areas, with a special concern with the method to find the spacial structures and those meanings.
Landscape Planning	1	Explaining the system of planning for the landscape conservation. Here we consider landuse and natural environment as well as the design of building. Understanding the regulation and also considering the way we can create the new and high-qualified designs under the regulation.
Land Use Planning	1	Understanding the system of land use planning including nature protection, parks and openspace, agricultural land use regulation, forestry land use regulation and city planning.
How to utilize Maps and Aerophotos	1	Explaining how to utilize maps, aerophotoes, old drawings, and other materials which shows us how a certain district has been transformed. This is an important and basic approaches to understand the meanings of each building site.
Parks and Openspaces	1	Explaining the planning systems for parks and openspaces. Specially we will focus on the ecological planning and also on the local community's participation.
Community and Planning for disaster prevention	2	Explaining the planning system for disaster prevention in the cities, with a special concern with traditional towns and villages mainly composed with wooden houses and narrow street system. We also focus on the roles of parks and openspaces for disaster prevention.
Planning for urban traffic	1	Explaining the updated planning tools for urban traffic, with a special concern with the TDM cases and the relation between traffic planning and old city revitalization.
Urban Development Projects	1	Explaining the systems of urban development projects such as the land readjustment project, the urban redevelopment projects and the new town development. We also focus on the recent problems of those systems.
Master Plan	1	Explaining the system and contents of master plan, with a special concern with the history of several master plans have been introduced.
Case excersise	2	Case study and disctict planning exercises

【Textbook】

【Textbook(supplemental)】Additional Documents will be distributed during each lectures. Field Survey in Kyoto City Area will be held.//MIMURA Hiroshi, "Chiiki Kyosei No Toshi Keikaku" (Ver.3, 2005, Gakugeishuppan)

【Prerequisite(s)】

【】

【Web Sites】

【Additional Information】Monday 16:15 -- 18:00, please make appointment with email (kanki@archi.kyoto-u.ac.jp) in advance.

Urban Environment Engineering

都市環境工学

【Code】 40520 【Course Year】 3rd year 【Term】 second semester, 2018 【Class day & Period】 【Location】 N8

【Credits】 2 【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese

【Instructor】 Kazunori HARADA, Taiichiro ISHIDA, Tomoaki NISHINO

【Course Description】 In the urban area, buildings and public structures are densely located. Majority of human activities are carried out in relation with these structures. Consumption of energy and natural resources are deeply related with the interaction with activities and structures. In this course, lectures will be given on the state-of-the-art of energy and natural resource consumption in relation with urban structures, energy saving strategies, the concept of environmental friendly city/architecture.

【Grading】 Score is evaluated based on end-term examination and other materials.

【Course Goals】 B1) scientific ability to solve problems, B4) understanding of environmental engineering aspects in architecture, C2) understanding societal role of architecture

【Course Topics】

Theme	Class number of times	Description
Global environment and sustainable development	2	Inter-relations between architectural, urban and global environment. Sustainable development, evaluation of environmental impact.
Explosion of urban area environmental impact	1	History of urban area development, increase in environmental pollution, energy use and environmental impact.
Mechanism of Heat Island and Countermeasures	2	The mechanism and the state-of-the-art of urban warming, often referred to as heat island, are explained. The existing and future countermeasures are to be discussed. The countermeasures are also discussed including cross ventilation of urban district, green vegetation, high albedo surfaces, water mist, district energy management and heat exhaust system.
Control of Urban Environment and Architecture	4	The efficacy of green vegetation in urban area, improvement of room environment by roof vegetation and examples are explained. The energy saving effect of high reflective materials on building envelope and its shortcomings will be explained. In view of reducing heat release to urban area, the effect of high-performance air conditioning system is described.
Sunlight	2	The effect of sunlight, calculation of sun position and direct solar luminance, shading control and deregulation by daylight factor are explained.
Use of Renewable Energy in Buildings	3	The state of the art of renewable energy and its use in buildings will be explained, such as Zero Energy Buildings.
Evaluation of Achievement	1	Achievement on above items will be evaluated.

【Textbook】 None specified. Handouts will be supplied on site.

【Textbook(supplemental)】 To be suggested during the course.

【Prerequisite(s)】 The participants are required to study Environmental engineering in Architecture I (40090) and II (40100) prior to join this course. In addition, the knowledge on Building Systems Design (40180) is desirable.

【】

【Web Sites】

【Additional Information】 [Office hour] Opportunity for Q&A will be provided during the spare time before and after each lecture. Participants can make appointments for further questions.

Lighting and Acoustics in Architecture

建築光・音環境学

【Code】 40320 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	3	
	2	
	2	
	2	
	2	
	3	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Thermal Environment Design of Architecture

建築温熱環境設計

【Code】 40600 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese

【Instructor】 Kazunori HARADA, Daisuke OGURA, Chiemi IBA,

【Course Description】 In this course, basic concepts for controlling thermal environment of daily habitation space such as especially dwellings. Practical methods for passive thermal environment control is described.

【Grading】 Score is evaluated based on end-term examination and other materials.

【Course Goals】 The participants will be trained so that he/she can develop conceptual design of passive controlling elements and their combination for use in dwellings. Corresponding goals for education of department are C: Practical skills, C1: Capability in Realize Building Projects.

【Course Topics】

Theme	Class number of times	Description
Introduction - climate and buildings	1	
Utilization of heat capacity	2	
Benefits and risk of moisture	2	
Thermal system of human body	1	
Insulation of building envelope	2	
Solar shading and utilization	1	
Cross ventilation	2	
Indoor air quality	2	
Residential commissioning	1	
Evaluation of achievement	1	

【Textbook】 None specified. Handouts will be supplied on site.

【Textbook(supplemental)】 To be suggested during the course.

【Prerequisite(s)】 The participants are required to study Environmental engineering in Architecture I (40090) and II (40100) prior to join this course.

【 】

【Web Sites】

【Additional Information】 [Office hour] Opportunity for Q&A will be provided during the spare time before and after each lecture. Participants can make appointments for further questions.

Analytical Methods of Building Structures

建築構造解析

【Code】 40340 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	<small>Class number of times</small>	Description
	6	
	4	
	4	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Earthquake Resistant Structures

耐震構造

【Code】 40360 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	<small>Class number of times</small>	Description
	1	
	6	
	2	
	2	
	3	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Reinforced Concrete Structure II

鉄筋コンクリート構造 II

【Code】 40370 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	2	
	4	
	6	
	2	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Steel Structure II

鉄骨構造 II

【Code】 40380 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	2	
	1	
	2	
	2	
	1	
	2	
	2	
	2	
	1	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Atelier Practice of Architectural Design III

設計演習 III

【Code】 40390 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 3

【Restriction】 No Restriction 【Lecture Form(s)】 Seminar 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	14	
	14	
	2	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Atelier Practice of Architectural Design IV

設計演習 IV

【Code】 40400 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 3

【Restriction】 No Restriction 【Lecture Form(s)】 Seminar 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	<small>Class number of times</small>	Description
	14	
	14	
	2	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Applied Mathematics for Architecture

建築応用数学

【Code】 40540 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 【Language】 Japanese

【Instructor】 Ohsaki, Ogura, Ohtani, Nishijima

【Course Description】 Applied Mathematics required for understanding architecture such as architectural planning, structural design, environmental design is taught. It is aimed that students will acquire the ability to understand and analyze the architecture from mathematical viewpoint.

【Grading】 Final examination

【Course Goals】 Ordinary and partial differential equations, integral transform, probability theory and statistics, calculus of variation

【Course Topics】

Theme	Class number of times	Description
Ordinary and partial differential equation	3	General method to solve ordinary differential equations is explained.
Fourier transform	3	Fourier transform and its application to architectural engineering are explained.
Laplace transform	3	Laplace transform and its application to architectural engineering are explained.
probability theory and statistics	2	Fundamentals of probability theory and statistical methods are explained, and their applications to architectural engineering are shown.
calculus of variation	3	Basics of calculus of variation and approximate methods such as Galerkin method are explained. Examples including minimal surface and energy principle are also explained.
Verification of how students understand	1	About what students learned in the previous 14 lectures, we check how deep they understand the contents of each unit.

【Textbook】 Katoh, Hokoi, Takahashi, Ohsaki, Mathematics for architectural engineering, (in Japanese) Asakura shoten, 2007

【Textbook(supplemental)】

【Prerequisite(s)】 Calculus, mathematical statistics and industrial mathematics are prerequisite.

【 】

【Web Sites】

【Additional Information】 Please contact teachers in advance when you have questions.

Architectural Information System

建築情報システム学

【Code】 40550 【Course Year】 3rd year 【Term】 【Class day & Period】 【Location】 N8 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese

【Instructor】 Professor Takashi KANETA

【Course Description】 Information modeling on architecture will be lectured. Also research and development applied to building construction project will be introduced.

【Grading】 Final examination.

【Course Goals】 D-D1

【Course Topics】

Theme	Class number of times	Description
Outline on architectural information system	3	
Mathematical programming	4	
Building information modeling	4	
Application to architecture and urban engineering	3	
Test	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】 Basic knowledge on mathematics. "Computational Practice on Architectural Design and Engineering" should be mastered.

【 】

【Web Sites】

【Additional Information】 Contact to:

kaneta@archi.kyoto-u.ac.jp

Architectural Planning II

建築計画学 II

【Code】 40270 【Course Year】 4th year 【Term】 1st semester, 2018 【Class day & Period】 Fri 3rd

【Location】 C2-101, Katsura Campus 【Credits】 2 【Restriction】 No Restriction 【Lecture Form(s)】 Lecture

【Language】 Japanese 【Instructor】 Ken MIURA,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	2	
	7	
	2	.
	3	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【】

【Web Sites】

【Additional Information】

Foundation Engineering

建築基礎構造

【Code】 40350 【Course Year】 4th year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese

【Instructor】 Hiroshi KAWASE, Shinichi MATSUSHIMA,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	1	
	2	
	2	
	2	
	2	
	1	
	2	
	2	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Wind Resistant Structures

耐風構造

【Code】 40420 【Course Year】 4th year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese

【Instructor】 Takashi Maruyama, Kazuyoshi Nishijima

【Course Description】

【Grading】 By reports or examination

【Course Goals】 Acquisition of knowledge on wind resistant design. Understanding the estimation of wind load and the construction from the stand point of wind resistant design.

【Course Topics】

Theme	Class number of times	Description
Characteristics of wind	4	
Basic of wind force and pressure	4	
Wind load	3	
Wind resistant design	3	
Check of achievement	1	

【Textbook】 No textbook, using notebook.

【Textbook(supplemental)】 None

【Prerequisite(s)】 Structural engineering, fluid dynamics, meteorology will be useful.

【 】

【Web Sites】 None

【Additional Information】 Questions : directing during class

InTroductiOn To Global Engineering

地球工学総論（地球工学）

【Code】30011 【Course Year】4th year 【Term】1st semester in 2018 【Class day & Period】Wednesday・4

【Location】kyotsu155 【Credits】2 【Restriction】 【Lecture Form(s)】Lecture・Exercises 【Language】Japanese

【Instructor】

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
Guidance	1	
Safety and Engineering Ethics	1	
General Lectures	5	
Seminars	6	
Laboratory Visit	2	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

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【Web Sites】

【Additional Information】

Atelier Practice of Architectural Design V

設計演習 V

【Code】 40440 【Course Year】 4th year 【Term】 【Class day & Period】 【Location】 【Credits】 3

【Restriction】 No Restriction 【Lecture Form(s)】 Seminar 【Language】 Japanese 【Instructor】 ,,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	<small>Class number of times</small>	Description
	29	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Exercises on Structural Design of Buildings

構造設計演習

【Code】 40450 【Course Year】 4th year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	<small>Class number of times</small>	Description
	2	
	2	
	5	
	6	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Laboratory Tests of Structural Materials and Members

構造・材料実験

【Code】 40460 【Course Year】 4th year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 【Language】 Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	3	
	1	
	3	
	2	
	3	
	3	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Fire Safety Design of Buildings

建築安全設計

【Code】 40470 【Course Year】 4th year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese

【Instructor】 Kazunori Harada, Tomoaki Nishino, Daisaku Nii,

【Course Description】 In buildings and urban facilities, various fire safety measures are implemented, even though they are not well recognized in daily life. In the first half of this course, fundamentals on physical and chemical aspects of building fires are described. In the latter half, design methodologies for fire-safe buildings are described.

【Grading】 Score is evaluated based on end-term examination and other materials.

【Course Goals】 B1) scientific ability to solve problems, B4) understanding of environmental engineering aspects in architecture, C2) understanding societal role of architecture

【Course Topics】

Theme	Class number of times	Description
Introduction	1	The historical fire disasters are described to show the whole view of fire safety issues of buildings and urban area.
Basics of Fire Phenomena	6	Basic fire phenomena such as ignition, burning, spread, fire plume, initial room fire, flashover and fully-developed stage are described in sequence of fire development.
Fire Safety Design of Buildings	7	The principles of fire safety of buildings are described in terms of fire compartmentation, smoke control, egress of occupants, fire fighter's operation, structural fire resistance design.
Evaluation of Achievement	1	Achievement on above items will be evaluated.

【Textbook】 Kenchiku Kasaino Mekanizumuto Kasaienzen Sekkei (Mechanism of Building Fires and Safety Design), the Building Center of Japan, 2007 (in Japanese)

【Textbook(supplemental)】 Saburo HORIUCHI, Building Fire Prevention, new ed., Asakura Shoten // Takeyoshi TANAKA, An Introduction to Building Fire Safety Engineering, The Building Center of Japan, 2002 // Guidebook on performance Verification methods for egress safety, The Housing Bureau of Ministry of Land, Infrastructure and Transportation, Inoue Shoin, 2000
Guidebook on performance Verification methods for fire resistance, The Housing Bureau of Ministry of Land, Infrastructure and Transportation, Inoue Shoin, 2000

【Prerequisite(s)】 The participants are requested to accomplish Environmental engineering in Architecture I (40090), II (40100) and Building Systems Design (40180) prior to join this course.

【 】

【Web Sites】

【Additional Information】 [Office hour] Office hours are not specified but opportunity for Q&A will be arranged upon request. Contact the lecturer via mail with your name, student ID and time of your convenience up to three candidates.

Design Theory of Building Systems

建築設備計画法

【Code】 40730 【Course Year】 4th year 【Term】 【Class day & Period】 Wednesday

【Location】 C2-101, Katsura campus 【Credits】 2 【Restriction】 No Restriction 【Lecture Form(s)】 Lecture

【Language】 Japanese

【Instructor】 Kazunori HARADA, Daisuke OGURA, Yasushi TAKANO, Taiichiro ISHIDA, Makoto OHTANI, Tomoaki NISHINO, Shinya UEDA,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	1	
	1	
	2	
	1	
	3	
design of fire safety system and seismic design of equipent	1	The schematics of fire safety system, such as fire detection, suppression and egress guidance, are introduced in connection with building design. The state of seismic damage of building equipment is introduced. The design method of building equipment against seismic action will be explained
	1	
maintainance and optimum operation	1	
introduction to actual design projects	2	
site visit and/or a lecture by practioners	1	Site visit and/or a lecture by a practioner will be arranged to see and understand the practical equipment system.
evaluation of archivements	1	Achievement on above items will be evaluated.

【Textbook】 None specified. Execise sheet will be provided during the lecture.

【Textbook(supplemental)】

【Prerequisite(s)】 Knowledge on Environmental Engineering in Architecture I(40090) and II(40100) are necessary. In addition, it is desirable that the participants have joined the follwoing courses; Building Systems Design(40180), Lighting and Acoustics in Architecture (40320), Urban Environment Engineering (40520), Thermal Environment Design of Architecture(40600).

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【Web Sites】

【Additional Information】 [Office hour] Questions are accepted at occasion. Contact lecturers for the arranment of occice hours.

Seminar of Practice in Architectural Environmental Engineering

建築環境工学演習

【Code】 40230 【Course Year】 4th year 【Term】 【Class day & Period】 【Location】 【Credits】 2

【Restriction】 No Restriction 【Lecture Form(s)】 Seminar 【Language】 Japanese

【Instructor】 Kazunori HARADA, Daisuke OGURA, Yasushi TAKANO, Taiichiro ISHIDA, Makoto OHTANI, Tomoaki NISHINO, Chiemi IBA, Daisaku NII,

【Course Description】 This course is provided to enhance global understanding of the contents lectured in Environmental Engineering in Architecture I & II, and to develop capability in applying the knowledge to real projects. For each topic, examples of design problems are supplied. The participants are to solve the problems by their own skills while interacting with lectures.

【Grading】 Score is evaluated based on reports and participation.

【Course Goals】 The goal is to make global understanding of the elements in environmental engineering in architecture and their mutual relationships. Corresponding goals for education of department are; A: global capability, A2: Capability in understanding the value of architecture in multiple measures, C: Practical skills, C1: Capability in Realize Building Projects.

【Course Topics】

Theme	Class number of times	Description
heat conduction and condensation	3	
HVAC system	3	
Building accoustics	3	
lighting and color	1	
Solar characteristics and daylighting	1	
ventilation and smoke control for evacuation	2	(1) Basic subjects on ventilkation design such as Velnouille's for mula, pressure difference, friction coefficients, wind pressure coefficients, newtral plane height. (2) Smoke control design for escape from fire in a building
special lecture and/or site visit	1	Special lecture or site visit are to be planned to introduce design and construction of environmental control systems of real building projects.
	1	

【Textbook】 None specified. Practice sheet will be provided during the course.

【Textbook(supplemental)】 Textbooks and notebooks on the courses specified below are necessary for consultation. Function calculator must be provided by participants themselves.

【Prerequisite(s)】 The participants are required to study Building Systems Design (40180), Environmental engineering in Architecture I (40090) and II (40100) prior to join this course. In addition, the knowledge on Building Systems Design (40180), Urban Environment Engineering (40520), Lighting and Acoustics in Architecture (40320), Thermal Environment Design of Architecture (40600) is desirable.

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【Web Sites】

【Additional Information】 [Office hour] Office hours are not specified but opportunity for Q&A will be arranged upon request. Contact the lecturer via mail with your name, student ID and time of your convenience up to three candidates.

English for Architects

専門英語

【Code】40650 【Course Year】4th year 【Term】 【Class day & Period】 【Location】 【Credits】2 【Restriction】No Restriction
 【Lecture Form(s)】Lecture 【Language】English, Japanese 【Instructor】 ,

【Course Description】 Le Corbusier said, in Vers une architecture [Towards an Architecture] (1923)

"You employ stone, wood and concrete, and with these materials you build houses and palaces. That is construction. Ingenuity is at work. But suddenly you touch my heart, you do me good, I am happy and I say: "This is beautiful." That is Architecture. Art enters in."

Mies van der Rohe said, "God is in the details.", "Less is more.", "Architecture starts when you carefully put two bricks together. There it begins." Mies van der Rohe was originally from Germany and had moved to America. Corbusier was originally from Switzerland and had moved to France. Architecture has local concerns, and yet its influence is global, and sometimes timeless.

Although English does not even have the largest number of native speakers in the world, it is the global working language of arts and science, as well as in international project collaborations. In this class we will read a number of architectural essays, starting with reading the imaginative Invisible Cities and analysis on Corbusier's works.

【Grading】 Students will need to read different texts and solve the related problems. Students are expected to be able to read, discuss and present architecture in English at the end of the class. There will be no final examination. Attendance, class participation and exercise completion is important.

Homework/ tests - 40% Presentations - 40%. Attendance - 20%.

【Course Goals】 Able to use basic English for communicating and presenting architectural ideas.

【Course Topics】

Theme	Class number of times	Description
Introduction	1	Read " <u>Invisible Cities</u> "
Draw and talk, read <u>Experiencing Architecture</u>	1	Read "Domino: Archetype"
Le Corbusier	1	Read "Mathematics of Ideal Villa"
Villa & Mathematics	2	Exercise: Concrete & 5 points, Villa design
Talk about your villa	1	Read "Stone"
<u>Genius Loci</u>	2	Read "Stone" and complete exercise
Q&A concept check	1	Read " <u>Image of the City</u> "
<u>Image of City</u>	1	Draw about a part of Kyoto
Talk about Kyoto, read " <u>From Shinto to Ando</u> " , case study	3	Prepare for final presentation
Final check	1	Final presentation

【Textbook】 Steen Eiler Rasmussen, Experiencing Architecture, MIT Press, 1992. [Experiencing Architecture pdf](#)

Italo Calvino, Invisible Cities, Harcourt Brace & Co., 1972. [Invisible Cities pdf](#)

Gunter Nitschke, From Shinto to Ando, Academy, 1993. [From Shinto to Ando pdf](#)

Christian Norberg-Schulz, Genius Loci: Towards a Phenomenology of Architecture, Academy Editions Ltd, 1980. [Genius Loci pdf](#)

Kevin Lynch, The Image of the City, Harvard-MIT Joint Center for Urban Studies Series, 1964. [Image of the City pdf](#)

【Textbook(supplemental)】 Kenneth Frampton, Modern Architecture: A Critical History, Thames and Hudson, 1992. [Modern Architecture pdf](#)

Junichiro Tanizaki, In Praise of Shadows, Leet ' s Island Books, 1997. [In Praise of Shadows pdf](#)

Le Corbusier, Towards a New Architecture, Dover, 1986. [Towards A New Architecture pdf](#)

Christian Schittich, in Detail Japan, Birkhauser, 2002.

Graphic Anatomy Atelier Bow-Wow, Toto, 2007.

Francis D.K. Ching, Building Construction Illustrated, John Wiley and Sons, 1991.

Francis D.K. Ching, A Visual Dictionary of Architecture, John Wiley and Sons, 2011.

A Visual Dictionary pdf

【Prerequisite(s)】

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【Web Sites】

【Additional Information】 About me: <http://kyokoto.com/esther.html>

My essay [Hand or Machine](#), 2012.

Engineering Ethics

工学倫理

【Code】21050 【Course Year】4th year 【Term】2018 first semester 【Class day & Period】Thu 3rd 【Location】Research Bldg. No.8, 3F, NS Hall 【Credits】2 【Restriction】No Restriction

【Lecture Form(s)】Lecture 【Language】Japanese

【Instructor】Dean of the Faculty of Engineering

Graduate School of Engineering, Professor, Makoto OHSAKI

Graduate School of Energy Science, Professor, Hirohiko TAKUDA

Graduate School of Engineering, Junior Associate Professor, Ryosuke MATSUMOTO

【Course Description】Modern ethics based on engineering aspect are becoming essential to present engineers and scientists. Instructors from various faculties give lectures about ethics in their research fields.

【Grading】Class participation and reports.

【Course Goals】The goal of this class is to understand engineering ethics, and to develop the ability to judge by yourself when you encounter ethical issues.

【Course Topics】

Theme	Class number of times	Description
Significance to learn engineering ethics(4/12)	1	This class gives students explanation about what engineering ethics is and the reason why it is necessary to learn it introducing some troubles in the field of transportation engineering and planning. (N. Uno: Global Engineering)
Ethics in information society on the view point of information technology(4/19)	1	Information devices such as PCs and smartphones and various web services such as SNS are very convenient, but there are also risks of being dangerous depending on usage. In this lecture, we describe the knowledge and the code of conduct to live safely in the information society. (A. Yamamoto: Informatics and Mathematical Science)
(4/26)	1	(M. Mizutani: Graduate School of Letters)
Ethical theories for engineering ethics (5/10)	1	This lecture will focus on basic ethical theories such as utilitarianism, deontology and virtue ethics which will be useful for thinking about particular ethical problems in engineering ethics. (S. Kodama: Graduate School of Letters)
Ethics in Architectural Engineering(5/17)	1	Discussions will be held to increase the ability as engineers to responsibly confront moral issues in the field of building engineering using actual technological activities as examples, such as putting water into fresh concrete, falsification of earthquake-resistance data, shoddy workmanship and architect qualification fraud. (M. Nishiyama: Architecture)
Engineering ethics in operation and maintenance of structures(5/24)	1	Although operation and maintenance of structures such as a plant and an aircraft require enormous labor and cost, unsuitable operation and maintenance may lead to serious accidents that cause unmeasurable damage. This class discusses engineering ethics that engineers are required under the situation. (T. Hayashi: Engineering Science)
Research and engineering ethics(5/31)	1	It is said that He that will do no ill, must do nothing that belongs thereto. The sense of ethics necessary to whom conducts research and engineering work in society is discussed in terms of the importance of equitability and fair evaluation to anyone involved in each area of research or engineering. (H. Mikada: Global Engineering)
Patents and Ethics (Part 1)(6/7)	1	This course will teach the students about 1) patent systems which protect inventions and research results and 2) ethical issues in patents. The first class, in preparation for the next subject of patent ethics, introduces Japan ' s patent system with comparisons to the patent systems in the world ' s major countries and international framework. (M. Nakagawa: Electrical and Electronics Engineering)
Patents and Ethics (Part 2) (6/14)	1	Students, equipped with the basic knowledge of patent systems by the previous lecture, will get familiar with actual case studies on ethical and legal issues in patents. (M. Nakagawa: Electrical and Electronics Engineering)
Ethics Required for Advanced Science(6/21)	1	Engineers and researchers are at the forefront of preventing harm caused by advanced chemistry. Think about social roles and ethics required by engineers and researchers through relationships between chemical substances and environmental problems, efforts to avoid hazards of nanomaterials. (K. Miura: Industrial Chemistry)
Ethics in nuclear engineering(6/28)	1	Nuclear technology can brew up an expansive and long-running catastrophe as well as it brings significant value of stable electricity in normal times. Some examples of ethics in nuclear engineering are introduced and important issues are talked. (I. Takagi: Engineering Science)
Ethics in biomedical engineering(7/5)	1	Recent dramatic progress in biology-related techniques, such as reproductive medicine, genome editing, and clone-animal techniques, is causing revolutions in the fields of medicines and food productions. Associated with it, problems of their safety and ethics are arising, which should be addressed by our societies. In this class, the recent progress in biology-related techniques, and problems we have and will have in near future are described. (M. Shirakawa: Industrial Chemistry)
Ethics of biotechnology and stem cell research(7/12)	1	With the rapid development of genome editing technology and stem cell engineering, editing of the human genome that goes beyond generations has become possible, at least technically. In this lecture, I will introduce these latest technologies and think about ethical problems accompanying technological development. (G. Eiraku: Industrial Chemistry)
Art-view Concept for Engineering(7/19)	1	Concept of "quality of life" is required for human related engineering. Some practical examples in medical-care and welfare fields will be introduced, and problem of the QOL-evaluation will be discussed from both function-optimizing view point and art view point. (N. Tomita: Engineering Science)
Ethics for Civil Engineers (7/26)	1	Civil Engineers play a key role on development of social infrastructures to protect people's lives from natural disasters and to support social and economic activities. This lecture introduces the engineering ethics on development of social infrastructures with specific examples. (T. Yagi: Global Engineering)

【Textbook】Lecture materials will be distributed.

【Textbook(supplemental)】

【Prerequisite(s)】

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【Web Sites】

【Additional Information】The class order is subject to change.

Introduction to Engineering

工学序論

【Code】 21080 【Course Year】 1st year 【Term】 【Class day & Period】 【Location】 【Credits】 1

【Restriction】 No Restriction 【Lecture Form(s)】 【Language】 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	<small>Class number of times</small>	Description
	1~2	
	6	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Engineering and Economy(in English)

工学と経済（英語）

【Code】22210 【Course Year】2nd year and above 【Term】2018 first semester 【Class day & Period】Tuesdays 5th-6th

【Location】工学部総合校舎 1 1 1 講義室 【Credits】2 【Restriction】 【Lecture Form(s)】 【Language】English 【Instructor】Juha Lintuluoto

【Course Description】The purpose of this course is to teach economy from an engineer viewpoint. The course especially contains such economic topics which engineer can use to solve practical engineering economy problems. The course is consisted of lectures and additional exercises, of which the student should complete five (5) written short reports and five (5) 60 minutes laboratory session attendances. The laboratory sessions are held weekly after the lecture, and consist of interactive group work tasks. Laboratory sessions are held weekly from 18 to 19 o'clock.// The course is aimed for both Japanese and Foreign nationals.// The course starts on April 10th.

【Grading】Test, reports, laboratory performance.

【Course Goals】This course will provide tasks for engineering students to be able to understand relationships between engineering and engineering economy. Students will learn solving economic problems related to engineering project at various levels. The course also prepares the students to write engineering related economic topics in English as well as verbally express themselves of these subjects.

【Course Topics】

Theme	Class number of times	Description
Student orientation, Introduction to engineering economy	1	Course introduction; Principles of engineering economy
Cost concept	1	Cost terminology; Competition; Total revenue function; Breakeven point
Design economics	1	Cost-driven design; Making vs. purchasing; Trade-offs
Cost estimation techniques I	1	Integrated approach and WBS; Index, unit, and factor techniques
Cost estimation techniques II	1	Parametric estimating; Power-sizing technique; Learning curve; Cost estimation, bottom-up, top-down, target costing
The time value of money I	1	Simple interest; Compound interest; Equivalence concept; Cash-flow diagrams
The time value of money II	1	Present and future equivalent values of single cash flows
The time value of money III	1	Uniform series cash flows; Deferred annuities; Uniform gradient cash flows; Nominal and effective interest rates
Evaluation of a single project I	1	Determining minimum attractive rate of return (MARR); The present worth method; Bond value; Capitalized-worth method
Evaluation of a single project II	1	The future worth method; The annual worth method; The internal rate of return method; The external rate of return method
Comparison and selection among alternatives I	1	Basic concepts; The study (analysis) period; Useful lives are equal to the study period
Comparison and selection among alternatives II	1	Useful lives are unequal to the study period; Repeatability; Cotermination; The imputed market value technique
Income taxes and depreciation	1	Concepts and terminology; Depreciation; Straight-line method; Declining-balance method; Income taxes; Marginal tax; Gain or loss on the disposal of an asset; After-tax economic analysis
Final test	1	The test is based on the above topics

【Textbook】Sullivan, Wicks, Koelling; Engineering Economy, 15th Ed. 2012, Chapters 1-7.

【Textbook(supplemental)】

【Prerequisite(s)】Note:

- Interactive lessons (discussion), Small group working method
- This course is held in English.

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【Web Sites】None

【Additional Information】If you have any questions or need further information, feel free to contact at 090aglobal@mail2.adm.kyoto-u.ac.jp.

Global Leadership Seminar I

G L セミナー (企業調査研究)

【Code】24010 【Course Year】 【Term】 【Class day & Period】 【Location】 【Credits】1 【Restriction】

【Lecture Form(s)】 【Language】Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	<small>Class number of times</small>	Description
	1	
	2~3	
	2~3	
	12	
	3~4	
	1	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

Global Leadership Seminar II

GLセミナー（課題解決演習）

【Code】25010 【Course Year】2nd year or higher 【Term】FY2018, 2nd semester, intensive

【Class day & Period】Intensive course 【Location】Announced elsewhere 【Credits】1

【Restriction】Restriction in number to around 20 selected students 【Lecture Form(s)】Lecture and exercise

【Language】

【Instructor】Faculty of Engineering, J. Assoc. Prof., Yoshinori Tanaka

Faculty of Engineering, J. Assoc. Prof., Ryuichi Ashida

Faculty of Engineering, J. Assoc. Prof., Aiko Takatori

Faculty of Engineering, J. Assoc. Prof., Tadao Mizuno

Faculty of Engineering, J. Assoc. Prof., Ryosuke Matsumoto

Related professors

【Course Description】This course is a small-group workshop program where students are supposed to extract or set up challenges by themselves aiming at creating new social values. In concrete, abilities of planning and problem-solving are trained through group works in residential training and skills of presentation and communication are enhanced through oral presentations regarding contents of the proposal at each step of the process from a preliminary draft to its completion.

【Grading】It is required to join the residential training. A report meeting is held and comprehensive evaluation concerning abilities in group discussion to extract or set up challenges and to propose solutions for achieving a goal is made through presentation of the proposal as well as a submitted report.

【Course Goals】Ability of planning, from extraction or setting up challenges to proposal of solutions aiming at creating new social values, is trained through group works.

【Course Topics】

Theme	Class number of times	Description
Orientation	1	A brief overview and a schedule of the course are explained and working groups are organized.
Lectures	2	Lectures by experts are given.
Group works	3	Setting up challenges, extraction of problems, collecting information, and group works are done.
Residential training	7	Through intensive group works based on discussion, a proposal for solving problems is planned, a draft report is made, and a few presentations are made.
Preliminary review meeting	1	A preliminary review meeting is held and discussions are made.
Report meeting	1	Final presentations are made and reports are submitted.

【Textbook】Will be indicated as necessary.

【Textbook(supplemental)】Will be indicated as necessary.

【Prerequisite(s)】

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【Web Sites】

【Additional Information】Course open period: October to January

How to register the course will be instructed.

*It depends on divisions which students belong to whether the earned credits are admitted as credits required for graduation. Please refer to the syllabus of your division.

International Internship of Faculty of Engineering I

工学部国際インターンシップ 1

【Code】 24020 【Course Year】 Junior and Senior students 【Term】 Through the academic year

【Class day & Period】 Intensive course 【Location】 Defined in each internship program. 【Credits】 1

【Restriction】 Defined in each internship program 【Lecture Form(s)】 Exercise 【Language】 English, et al.

【Instructor】 Chairperson of Foreign Students and International Academic Exchange Subcommittee, Faculty members in charge of educational affairs of the undergraduate school the registrant belongs to.

【Course Description】 Acquisition of international skills with the training of foreign language through the internship programs hosted by the University, the Faculty of Engineering, or the undergraduate school the applicant belongs to.

【Grading】 Merit rating is done based on the presentation or reports after each internship program. Each Department responsible to identify if the credit earned by this subject to be included as mandatory ones or not. If the credit is not included in the undergraduate school in which the participant belongs to, the credit is granted by the Global Leadership Education Center as a optional credit. The number of credits, either 1 or 2, will be determined depending on the contents and the duration of the program that the participant has participated in.

【Course Goals】 The acquisition of international skills with the training of foreign language through the to internship programs hosted by the University is the major expectation to the students.

【Course Topics】

Theme	Class number of times	Description
Overseas Internship	1	The contents to be acquired should be described in the brochure of each internship program.
Final Presentation	1	A presentation by the student is required followed by discussion among participants.

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】 Described in the application booklet for each internship program. The registrant is requested to have enough language skills for the participation.

【】

【Web Sites】

【Additional Information】 It is required for students to check if the internship program to participate in could be evaluated as part of mandatory credits or not and could earn how many credits before the participation to the undergraduate school or educational program the student is enrolled. If the credit could not be treated as mandatory ones, get in touch with the Global Leadership Engineering Education Center.

International Internship of Faculty of Engineering 2

工学部国際インターンシップ2

【Code】 25020 【Course Year】 Junior and Senior students 【Term】 Through the academic year

【Class day & Period】 Intensive Course 【Location】 Defined in each internship program. 【Credits】 2

【Restriction】 Defined in each internship program. 【Lecture Form(s)】 Exercise 【Language】 English, et al.

【Instructor】 Chair of Foreign Students and International Academic Exchange Subcommittee, Faculty members of the Undergraduate School the registrant belongs to.

【Course Description】 Acquisition of international skills with with the training of foreign language through the participation to the international internship programs held by the Faculty of Engineering or its subsidiary bodies.

【Grading】 Marit rating is done based on the presentation or reports after each internship program. Each Department responsible to identify if the credit earned by this subject to be included as mandatory ones or not. If the credit is not included in the undergraduate school in which the participant belongs to, the credit is granted by the Global Leadership Education Center as a optional credit. The number of credits, either 1 or 2, will be determined depending on the contents and the duration of the program that the participant has participated in.

【Course Goals】 The acquisition of international and foreign language skills through the participation to international programs is expected. Detailed objectives of the participation should be identified by each program.

【Course Topics】

Theme	Class number of times	Description
Overseas Internship	1	The contents to be acquired should be described in the brochure of each internship program.
Final Presentation	1	A presentation by the student is required followed by discussion among participants.

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】 Described in the application booklet for each internship program. The registrant is requested to have enough language skills for the participation.

【】

【Web Sites】

【Additional Information】 It is required for students to check if the internship program to participate in could be evaluated as part of mandatory credits or not and could earn how many credits before the participation to the undergraduate school or educational program the student in enrolled. If the credit could not be treated as mandatory ones, get in touch with the Global Leadership Engineering Education Center.

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([B] Architecture)
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デザイン 工学研究科附属情報センター

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- ・ Common Subjects of Faculty of Engineering
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- ・ [B] Architecture
- ・ [C] Engineering Science
- ・ [D] Electrical and Electronic Engineering
- ・ [E] Informatics and Mathematical Science
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